Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (**Currently Amended**) A device comprising a substrate and a film coating on said substrate, wherein said film coating comprises a quasi-amorphous pyroelectric compound, said compound comprising:

a metal, a mixture of metals, or a semi conducting compound lacking spatial periodicity;

said quasi-amorphous pyroelectric compound being an inorganic oxide compound having piezoelectric properties;

said quasi-amorphous pyroelectric compound being a product of application of a mechanical strain to a substantially amorphous compound, said mechanical strain being created by passing said film through a steep unidirectional temperature gradient generating a gradient of mechanical strain, said gradient of mechanical strain having one in-plane component along the temperature gradient and one out-of-plane component, said out-of-plane component inducing an irreversible orientation of the molecular grouping due to compressive stress from the in-plane component; said temperature gradient being controlled so as to prevent crystallization of said

compound, thereby obtaining highly stressed amorphous films and so that said compound is pyroelectric and has a pyroelectric vector whose direction cannot be changed or reversed, said film being clamped by the substrate creating mechanical constraints, such that volume expansion of said film is restricted .

2. (**Withdrawn- Previously presented**) The device of claim 1, wherein said quasi-amorphous compound has the formula (AxB1-x)pOn, wherein A and B are independently selected from transitions metals, elements of Group IVA of the periodic table, alkali metals, alkali earth metals and rare earth metals; x has values of between 0 to 1; p is an integer having the values 1, 2 or 3; and n is an integer having the value of 1, 2, 3 or 4.

3. (**Withdrawn- Previously presented**) The device of claim 2, wherein A is a transition metal or an element of Group IVA of the periodic table, x is 1 and p is 2.

4. (**Previously presented**) The device of claim 1, wherein said quasi-amorphous compound has the formula $(A_xB_{1-x})(C_yD_{1-y})O_n$ wherein A and B are independently selected from alkali metals, alkali earth metals, rare earth metals and elements of Group IVA of the periodic table; C and D are

independently selected from transition metals and alkali earth metals; x and y have values of between 0 to 1; and n is an integer having the value of 1, 2 or 3.

5. (Previously presented) The device of claim 4, wherein A and B are independently selected from Ba, Sr, Ca, Pb, La, Eu, Li, Na, K and Cs ; C and D are independently selected from Ti, Zr, Nb, Ta, Sc, Mg and V; and n is 3.

6. (**Withdrawn- Previously presented**) The device of claim 5, wherein A and B are independently selected from Ba, Sr, Ca, Pb, La and Eu.

7. (**Previously presented**) The device of claim 5, wherein A and B are independently selected from Li, Na, K and Cs.

8. (**Previously presented**) The device of claim 5, wherein C and D are independently selected from Ti and Zr.

9. (**Previously presented**) The device of claim 6, wherein C and D are independently selected from Ti and Zr.

10. (**Previously presented**) The device of claim 7, wherein C and D are independently selected from Ti and Zr.

11. (**Previously presented**) The device of claim 5, wherein C and D are independently selected from Nb, Ta, Sc, Mg and V.

12. (**Previously presented**) The device of claim 6, wherein C and D are independently selected from Nb, Ta and V.

13. (**Previously presented**) The device of claim 7, wherein C and D are independently selected from Nb, Ta and V.

14. (**Previously presented**) The device of claim 4, wherein y=0 and the quasi amorphous compound has the formula $(A_xB_{1-x})DO_3$, and is an inorganic compound.

15. (**Previously presented**) The device of claim 4, wherein the quasi-amorphous compound has a pyroelectric coefficient of between about 10^{-12} C/(cm^2 x K) and about 10^{-7} C/(cm^2 x K).

16. (**Previously presented**) The device of claim 14, wherein the quasi-amorphous compound has a pyroelectric

coefficient of between about 10^{-12} C/(cm^2 x K) and about 10^{-7} C/(cm^2 x K).

17. (**Previously presented**) The device of claim 4, wherein the quasi-amorphous compound is selected from $BaTiO_3$, $CaTiO_3$, $PbTiO_3$, $Pb(ZrTi)O_3$, $Pb(Zr_{0.35}Ti_{0.65})O_3$, $(PbCa)TiO_3$, $(PbLa)(ZrTi)O_3$, $PbLaTiO_3$, $Pb(ScTa)O_3$, $Pb(ScNb)O_3$, $Pb(MgNb)O_3$, $SrTiO_3$, $(Sr_{0.65},Ba_{0.35})TiO_3$, $(Ba_{0.70},Sr_{0.30})TiO_3$ and $EuTiO_3$.

18. (**Previously presented**) The device of claim 17, wherein the quasi-amorphous compound has a pyroelectric coefficient of between about 10^{-12} C/(cm^2 x K) and about 10^{-7} C/(cm^2 x K).

19. (**Previously presented**) The device of claim 17, wherein the quasi-amorphous compound is selected from $BaTiO_3$, $PbTiO_3$ and $SrTiO_3$.

20. (**Previously presented**) The device of claim 18, wherein the quasi-amorphous compound is $BaTiO_3$.

Claims 21-23. (**Cancelled**)

24. (**Previously presented**) The device comprising a substrate and a film coating on said substrate, wherein said

film coating comprises an inorganic quasi-amorphous compound of the formula $(A_xB_{1-x})(C_yD_{1-y})O_3$,

wherein A and B are independently selected from alkali metals, alkali earth metals, rare earth metals and elements of Group IVA of the periodic table;

C and D are independently selected from transition metals and alkali earth metals;

x and y have values of between 0 to 1;

lacking spatial periodicity; and

wherein said compound is a product of applying a mechanical strain to a substantially amorphous compound of the formula $(A_xB_{1-x})(C_yD_{1-y})O_n$ wherein n is an integer having the value of 1, 2 or 3, said mechanical strain being controlled so as to prevent crystallization of said compound, thereby obtaining inorganic quasi-amorphous compound having pyroelectric properties and so that said compound has a pyroelectric vector whose direction cannot be changed or reversed.

25-26. (**Canceled**)

27. (**Previously presented**) The device of claim 4, wherein the substrate is selected from Si, SiO_2 and glass.

28. (**Original**) The device of claim 27, wherein the thickness of the coating layer is below 0.5 micron.

29. (**Previously presented**) The device of claim 1, operable as a sensor for sensing an external field including at least one of the following: temperature field, magnetic field and electric field.

30. (**Previously presented**) The device of claim 4, operable as a sensor for sensing an external field including at least one of the following: temperature field, magnetic field and electric field.

31. (**Previously presented**) The device of claim 1, wherein said compound forms an acoustic wave propagation element.

32. (**Previously presented**) The device of claim 4, wherein said compound forms an acoustic wave propagation element.

33. (**Previously presented**) The device of claim 5, wherein said compound forms an acoustic wave propagation element.

34. (**Previously presented**) The device of claim 1, wherein said compound comprises a birefringent medium.

35. (**Previously presented**) The device of claim 4, wherein said compound comprises a birefringent medium.

36-38 (**Cancelled**).

39. (**Withdrawn- Previously presented**) The device of claim 3, wherein the substrate is selected from Si, SiO2 and glass.

40. (**Withdrawn- Previously presented**) The device of claim 39, wherein the quasi-amorphous compound is SiO2.

41. (**Previously presented**) The device of claim 1, wherein the quasi-amorphous pyroelectric compound is a non-crystalline ionic solid having macroscopic polarization.

42. (**Previously presented**) A device comprising a substrate and a film coating on said substrate, wherein said film coating comprises a quasi-amorphous pyroelectric compound

comprising a metal, a mixture of metals, or a semiconducting compound lacking spatial periodicity;

a. said quasi-amorphous pyroelectric compound being an inorganic oxide compound having piezoelectric properties, said pyroelectric compound being in the form of a film;

b. said quasi-amorphous pyroelectric compound being produced by applying a mechanical strain to a substantially amorphous compound being sputtered on said substrate;, said mechanical strain comprising passing said film through a steep unidirectional temperature gradient generating a gradient of mechanical strain, said strain gradient having one in-plane component along the temperature gradient and one out-of-plane component, said out-of-plane component inducing an irreversible orientation of the molecular grouping due to compressive stress from the in-plane component; and

c. said temperature gradient being controlled so as to prevent crystallization of the amorphous compound, thereby obtaining highly stressed amorphous films, and so that said compound is pyroelectric and has a pyroelectric vector whose direction cannot be changed or reversed.

43. (**Previously presented**) A device comprising a substrate and a film coating on said substrate, wherein said film coating comprises a quasi-amorphous pyroelectric compound

comprising a metal, a mixture of metals, or a semiconducting compound lacking spatial periodicity;

a. said quasi-amorphous pyroelectric compound being an inorganic oxide compound having piezoelectric properties;

b. said pyroelectric compound being a produced by applying a mechanical strain to a substantially amorphous compound;

c. said pyroelectric compound being made of a material having an asymmetric preferred direction;

d. said piezoelectric properties being stress induced dipole ordering; and

e. said mechanical strain being controlled so as to prevent crystallization of said compound, and so that said compound is pyroelectric and has a pyroelectric vector whose direction cannot be changed or reversed.

44. (**Previously presented**) The device of claim 1, wherein said film is clamped by the substrate, such that volume expansion of said film is restricted.

45. (**Previously presented**) The device of claim 24, wherein said film is clamped by the substrate, such that volume expansion of said film is restricted.

46. (**Previously presented**) The device of claim 42, wherein said film is clamped by the substrate, such that volume expansion of said film is restricted.